

**UNIVERSITI TEKNOLOGI MARA**

**EVALUATION OF THE CURRENT  
PRACTICES AND EFFECTIVENESS  
OF EMPIRIC ANTIBIOTIC THERAPY  
IN NEONATES SUSPECTED OF  
EARLY ONSET SEPSIS IN THREE  
TERTIARY HOSPITALS**

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Thesis submitted in fulfillment  
of the requirements for the degree of  
**Master of Science**

**Faculty of Pharmacy**

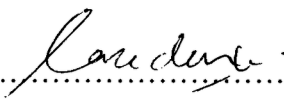
April 2015

## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rule and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

This is a retrospective study conducted in three Malaysian General Hospitals to describe the current practices and effectiveness of empirical antibiotic therapy for suspected early onset sepsis (EOS). Records of neonate patients admitted within 72 hr of life and prescribed with empiric antibiotic therapy were reviewed. 899 cases met the inclusion criteria. Cases were divided into gestational age (GA) and birth weight (BW). GA is further divided into premature (<37 weeks) and term ( $\geq 37$  weeks). BW is similarly divided into those weighing <2.5 kg (low birth weight, LBW) and  $\geq 2.5$  kg (normal birth weight, NBW) groups. More than 80% of neonates had respiratory symptoms during admission. However, there were significant differences in diagnosis among GA and BW groups ( $p = 0.001$ ). 60% of suspected EOS cases were premature neonates and LBW and they were mainly diagnosed for respiratory distress syndrome, congenital pneumonia and presumed sepsis. Majority of them were born to mothers exposed to antibiotic (s) and steroid during pregnancy. Many of these mothers also had prolong rupture of membrane > 18 h ( $p > 0.05$ ). Premature and LBW neonates also required longer hospital stay, ventilator support and surfactant administration ( $p < 0.05$ ). Term and NBW neonates were mainly diagnosed with congenital pneumonia, presumed sepsis, meconium aspirate syndrome and hypoxic ischemic encephalopathy. These observation were consistent with the high incidence of perinatal asphyxia and fit symptoms ( $p < 0.05$ ). National Antibiotic Guidelines (NAG) 2008 recommendations for empirical therapy in the management of suspected EOS were practices in all three hospitals. Penicillin plus gentamicin regimen was the standard therapy for all studied groups. This combination was started within 24 h of life and the mean treatment's duration being less than 4 days. However, there were slight variation in the doses of gentamicin and penicillin prescribed. Overall incidence of proven sepsis was 3.67% ( $n = 33$ ) and 70% was gram positive organism such as coagulase negative staphylococcus (CoNS) and Group B Streptococcus (GBS). The observed successful rates for the three hospitals were between 89 - 95%. This study showed that the NAG 2008 empiric antibiotic therapy recommendations for the management of suspected EOS treatment for all hospitalized neonates is still effective and valid.

## ACKNOWLEDGEMENTS

Alhamdulillah (All praise belongs to Allah),

First of all, I would like to express my sincere appreciation to both my supervisor and co-supervisor Professor Dr. Mohamed Mansor Manan and Professor Dr. Noorizan Abd Aziz for their inspiration, guidance and full support throughout the journey of completing this thesis. Without their encouragement and dedication I won't be able to complete this thesis on time.

Special thanks to the Director of Hospital Sultanah Aminah Johor Bahru, Dr. Rooshaimi Merican Rahim Merican, Director of Clinical Research Centre Hospital Pulau Pinang, Dr. Ong Loke Meng, Deputy Director (Clinical) of Hospital Raja Permaisuri Bainun Ipoh, Dr. Hj. Rahimi Goon, Head of Pediatric Departments, Dr. Mohd Nizam Mat Bah, Dr. Revathy Nallusamy and Pediatrician, Dr. Noor Khatijah Nurani for giving their permission in conducting the research using pediatric records in Record Department. Special thanks also go to all staffs in the Record Department and NICU for their cooperation and willingness to help in data collection.

This thesis would not have been possible without the special help and support from colleagues especially Pharmacist Siti Rosnah Suradi, Maznira Deraman, Maryam Farzanah Razip, Arvinder Kaur, all my colleagues from Pharmacy Practice Master Programme 2011/2012 and Siti Mallissa Mohd Shariff.

Lastly, special appreciation and thanks to all my beloved family members especially to my lovely mother Puan Masruna Hj. Hanipah for her prayers.

**TABLE OF CONTENTS**

	<b>Page</b>
<b>AUTHOR’S DECLARATION</b>	ii
<b>ABSTRACT</b>	iii
<b>ACKNOWLEDGEMENT</b>	iv
<b>TABLE OF CONTENTS</b>	v
<b>LIST OF TABLES</b>	xi
<b>LIST OF FIGURES</b>	xiv
<b>LIST OF ABBREVIATIONS</b>	xvi
 <b>CHAPTER ONE: INTRODUCTION</b>	
1.1 Overview	1
1.2 Neonatal Sepsis	2
1.3 Early Onset Neonatal Sepsis	2
1.4 Microorganisms	3
1.5 Risk Factors	4
1.6 Clinical Manifestations of Early Onset Neonatal Sepsis	4
1.7 Laboratory Indicators	5
1.8 Antibiotics in EOS	6
1.9 Gentamicin in Neonates	6
1.10 Age Terminology	7
1.11 Birth Weight Classification	8
1.12 Problem Statement	8
	v